

Amendment specification page 5, line 18: I have added the following: The proph angle drive gear 35 is contained and attached within the hollow interior cup-shaped fitting 39 which forms the end of the driveshaft 34 adjacent to the proph cartridge 38. This is not new matter because it is disclosed in the drawings.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7, 16 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7, 16 and 25 recites the limitation " , proph cup skirt" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 1, line 4 has been amended to add with a front polishing portion following "front end".

Claim 2 in line 1 ~~defines a skirt which~~ has been deleted, skirt in line 2 has been deleted and front end has been added.

Claim 7 has been deleted.

Claim 10, line 5 has been amended to add with a front polishing portion following "front end".

Claim 16, has been deleted.

Claim 19, line 5 has been amended to add with a front polishing portion after "front end".

Claim 20 in line 1 ~~defines a skirt which~~ has been deleted, skirt in line 2 has been deleted and front end has been added.

Claim 25,has been deleted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.**

Rejections under 35 U.S.C. 103(a).

I am responding with the following law in mind:

Prima Facie Obviousness

- (1) Some suggestion or motivation.....to modify.....combine.
- (2) Reasonable expectation of success.
- (3) Prior art must teach or suggest all the claim limitations MPEP § 2143.03.

MPEP § 2144.05

Prima Facie Obviousness may be rebutted by showing that the art, in any material respect, teaches away from the claimed invention (In re Geisler).

Claims 1-3, 7-12,16-21, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chipian et al (USPN 5,642,994). Chipian et al disclose a prophy angle comprising a prophy handpiece 105 with a driveshaft 140 with a first end with projections 210 and a second end attached to a prophy cup 110 with a longitudinal axial direction, a rear end and a front end, an inside and outside.

This is a generic description of dental prophy angles. As discussed below independent claims 1, 10 and 19 disclose claim limitations which Chipian does not disclose or suggest, in fact teaches away from. Chipian teaches away from any use of a solid prophy polish and does not disclose a way of enclosing the prophy polish exclusively within a prophy cup.

With further regard to Claim 1,

Claim 1 in the present invention claims "an angled prophy handpiece....." (This is the same as

Chipian's prophy handpiece), "an elastomeric dental prophy cup...." (This resembles Chipian's prophy cup) and a solid core prophy paste.....is contained longitudinally within the inside of the prophy cup" (This does not resemble Chipian in the consistency of the polishing material and its location). In the present invention the polishing paste is solid and contained completely within the prophy cup. The following examples illustrate that Chipian does not use or teach a solid core paste, rather Chipian uses a fluid agent which is essential for his invention: Col.2, line 59 "...dispenser for fluid substances....", Col. 2, line 64 "...dispensing of a fluid agent.", Col.2, line 66 " manually actuated fluid agent...", Col. 3, lines 1 and 2 "...provide fluid agent containers....", Col. 3, line 5 "....fluid agent....", Col. 3, lines 12 and 13 "....a fluid agent and dispensing system.....", and Col. 13, lines 1 and 2 "...to dispense a fluid from said dispensing container.".

The following examples illustrate Chipian does not teach storing the polish within the prophy cup:

Col. 6, lines 36-43 is as follows;

The present invention is a combination of the headpiece **100** described in FIGS. 2A, 2B and 2C, and a fluid agent storage container **300** shown in a preferred embodiment in FIGS. 3A and 3B. The storage container **300** is the simplest of all the storage containers to be disclosed herein. The container **300** is a flexible bladder, similar in function and form to a tube of toothpaste, except that a dispensing orifice **310** is offset from the center of an end cap **320** (see FIG. **3B**).

Referring to Figs. 3A and 3B in Chipian the fluid storage container **300** is extrinsic to the prophy cup and the prophy handpiece.

Chipian et al disclose "the present invention is a combination of the headpiece 100 described in Figs. 2A, 2B, and 2C and fluid agent storage container 300 shown in a preferred embodiment in Figs. 3A and 3B. The storage container 300 is the simplest of all the storage containers to be disclosed herein. The container 300 is a flexible bladder, similar in function and form to a tube of toothpaste, except a dispensing orifice 310 is offset from the center of an end cap 320 (see Fig. 3B)" (col. 6, lines 35-42). "The orifice 310 is designed to fit snugly into the interference tapered container port 250 of the headpiece 100, and still allow a fluid agent to flow out of the container 300 and into the port 250" (col. 6, lines 47-50). Further Chipian et al teach "To dispense the fluid agent, the headpiece 100 is secured to the dental instrument handpiece 105. The dispensing orifice 310 of a fluid agent filled bladder 330 slides into the interference tapered container port" (col. 6, lines 62-65). "A fingertip or thumb presses from the sealed end 350 of the bladder 330, thereby forcing a fluid agent out of the bladder 330 and into the headpiece lumen 230, through the cup shaft 170 and into the prophy cup 110" (col. 7, lines 2-5).

This has been discussed above and shows further examples of the differences between the solid core prophylactic paste 11 enclosed with a prophylactic cup of the present invention and an externally contained fluid agent storage container 300 as disclosed in Chipian.

Chipian et al fail to disclose or reasonably teach the prophylactic cup 110 having an elastomeric material, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the prophylactic cup of an elastomeric material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

This is true, as used here it further defines the invention. A prophylactic cup, in the alternative, could be constructed from a woven fiber in the shape of a prophylactic cup.

Further, the drive shaft disclosed by Chipian et al is manually driven but it would have been obvious design choice to make it electrically driven.

A manually driven prophylactic angle in dentistry has not existed since the invention of electrical motors. Note in the Chipian drawings the structure labeled as 140 is identified as a driveshaft. This driveshaft is locked into the chuck of a dental handpiece which rotates the driveshaft. Dental handpieces are driven by an electrical motor or compressed air (an air turbine). There are no manual dental handpieces.

The driveshaft in the present invention drives the prophylactic angle as it does in the Chipian invention. Note in Chipian the driveshaft 140 in Fig. 2A. Note in Chipian Col. 5, lines 45-46: "The drive shaft 140 is held securely within the handpiece 100....". The handpiece is either driven by an electric dental handpiece or an air driven handpiece.

As to Claims 2, 11, and 20 Chipian et al teaches a prophylactic cup having a front end with a skirt as shown in Fig. 1A

Claims 2, 11 and 20 have been amended as follows:

~~defines a skirt~~ has been deleted and following "...front end, the" ~~skirt~~ has been deleted and front end has been added. This makes the language of each dependent claim consistent with its respective independent claim. Take note in claims 2, 11 and 20 of the present application "the prophylactic cup front end 14 flares outwardly". In line 15 of the detailed description "defines a skirt which slopes outwardly towards

the front." The Merriam-Webster dictionary defines skirt: "To form or run along the border or edge of" In the present context the skirt begins and runs along the front edge of the prophy cup. Figs. 1A and 1B of Chipian disclose the prophy cup 40 slightly flaring in its full length: but, no definable skirt at the outer edge. Compare the shape of the prophy cup 1 in Figs. 2-5 in the present invention to the shape of the prophy cup 40 in Chipian in Figs. 1A, 1B and Fig. 11 (850). In Chipian the prophy cup, 40 and 850, gently tapers from the inner end to the outer end, wherein in the present invention there is a distinctly definable skirt at the outer end. Chipian does not teach a skirt as skirt is defined.

and explain "Fig. 1A is a perspective view of the simple system that the inventors believe is probably the most similar in appearance to the present invention" (col. 4, lines 53-56).

Comparing drawing 1A in Chipian to Fig. 2 in the present invention clearly illustrates that Chipian does not teach or suggest all the limitations of the present invention. Fig. 1A discloses the prophy angle 30 and prophy cup 40 with an external liquid prophy paste dispenser 20. As discussed above, the present invention discloses an internal (within the prophy cup) solid prophy material.

Regarding Claims 3, 12 and 21 Fig. 2A shows prophy cup 110 having a narrowing annular retaining lip at the bottom portion of cup 110.

There is no annular retaining lip at the bottom of the cup 110. Assuming the top of the cup is adjacent to the prophy handpiece, a better way to look at it is the prophy cup as shown in Fig. 2A has a widening at the top. The prophy cup as shown in Fig. 2A is the shape of a traditional prophy cup attached to a traditional prophy angle. The prophy cup is screwed to the head of the prophy angle. The function of the skirt is to protect adjacent prophy angle bearings from the pumice of the prophy paste. In the present invention the annular lip is shown in Figs. 2, 3, 4, and 5 as an internal ridge at the bottom of the prophy cup, the ridge designed to retain the solid core prophy paste.

With regards to Claims 7, 16, and 25 there is no further structural characteristics provided in these claims

Point well made concerning the structural characteristics..

Claim 7. Deleted.

Claim 16. Deleted.

Claim 25. Deleted.

Claims 7, 16 and 25 have been deleted.

and the prophy cup disclosed by Chipian et al is capable of performing in the same manner as the claimed invention.

As discussed above Chipian does not disclose or suggest a prophy cup capable of containing and progressively dispensing a solid core prophy paste. Chipian impliedly teaches away from a solid core paste contained within a prophy when all preferred embodiments, but one, include liquid prophy pastes contained external to the prophy cup. In the one exception the prophy cup is impregnated with polish; but, still requires a lubricant, such as glycerin, contained externally to the prophy cup. The Chipian prophy cup is not capable of containing a solid core paste within its prophy cup and the Chipian prophy is not capable of dispensing the solid core prophy paste upon demand as the present invention does. All Chipian's preferred embodiments disclose a liquid prophy stored externally from the prophy cup. As shown in Fig. 3A Chipian uses finger pressure to control the dispensing of the liquid prophy paste.

Referring to claims 9, 18 and 27 Chipian et al disclose, "it may be advantageous to permanently embed the abrasive agent in the prophy cup material as shown in Fig. 11" (col. 7, lines 40-42).

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). Claims 9, 18 and 27 are the same as Chipian; except, they include all the limitations of their respective independent claims. The limitations involve a specially designed prophy cup containing a solid core prophy paste, the cup and paste are designed to dispense the paste upon normal use.

Chipian et al also teaches the invention as stated in Claims 8, 10, 17 and 26 however they do not teach the claimed ranges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a prophy angle as stated in these claims with the specified ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

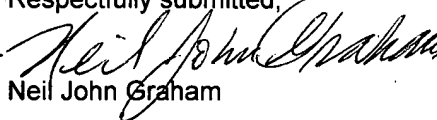
This is true. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). Claims 8, 17 and 26 include the limitations of their respective independent claims wherein the prophy cup has a special design for containing and dispensing a specially designed hard core prophy paste. Just as the Consolidated Patent Rules Section 1.75 (c) explains, a dependent claim must be viewed with all the limitations of the independent claim it refers to, an independent claim must be viewed with all its limitations.

Allowable Subject Matter

Claims 4-6,13-15,22-24, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

I believe the base claims are allowable for the above reasons. In the alternative to allowing claims 1, 10 and 19 this would be acceptable.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Neil John Graham", written over the printed name.

Neil John Graham

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